CALIFORNIA
ENERGY
COMMISSION

QUARTERLY REPORT
CONCERNING
MTBE USE IN CALIFORNIA GASOLINE
April1 through June 30, 2003
Report to the Legislature

STAFF REPORT

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Gray Davis, *Governor*

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Quarterly Report Concerning MTBE Use in California Gasoline

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Background

Senate Bill 1001 (Burton), Chapter 814, Statutes of 1999, requires the California Energy Commission to prepare a quarterly report on the amount of methyl tertiary butyl ether (MTBE) used in California gasoline. This report summarizes the amount of MTBE each California refinery used during the preceding quarter — April 1 through June 30, 2003.

The amount of MTBE reported in this document is the quantity blended at each refinery location for use in the production of California Reformulated Gasoline (CaRFG) and intended for sale in the state. The numbers do not include any MTBE used at California refineries for the production of any type of gasoline intended for sale outside the state. In addition, several small refineries operating in the state are not included in this report because they do not produce gasoline.

MTBE, a compound containing oxygen, is an oxygenate used to produce gasoline in California. California refiners also use two other oxygenates, ethanol and tertiary amyl methyl ether. Federal law requires California refiners to use a minimum amount of oxygen in all reformulated gasoline sold in severe and extreme ozone-nonattainment regions of the state. Those areas in California (mostly in Southern California, the Sacramento Metropolitan Area, and the San Joaquin Valley) account for over 80 percent of the gasoline used in the state (as of December 2002).

The California Air Resources Board adopted reformulated gasoline regulations that enable refiners to produce fully complying gasoline without the use of any oxygenates. California petitioned for a waiver of the federal minimum-oxygen requirement. On June 12, 2001, the U.S. Environmental Protection Agency denied the petition. If the request to waive the federal minimum-oxygen requirement had been granted, California refiners would have been able to reduce the volume of MTBE blended into gasoline. On July 17, 2003, the Ninth Circuit Court of Appeals ruled that the U.S. EPA must reconsider California's request to drop the oxygenate requirement for California. However, until refiners complete refinery modifications, they will likely need some MTBE to help them meet desired octane levels in premium grades of gasoline and in lower concentrations in other grades to help achieve compliance with reformulated gasoline specifications.

On March 15, 2002, Governor Gray Davis issued Executive Order D-52-02. The Order, in effect, allows California refineries up to 12 additional months for the transition from MTBE to ethanol in gasoline. Under the new timeline, the MTBE phase-out will be accomplished no later than December 31, 2003.

Second Quarter 2003 Results

California refiners used slightly more than 3 million barrels of MTBE to make CaRFG during the second quarter of 2003. This amount represents approximately 34,000 barrels or 1.4 million gallons of MTBE per day. Table 1 shows the use of MTBE by each refinery in California and total CaRFG production. The total volume of MTBE used by California's refiners increased by 4 percent compared to the first quarter of 2003. This increase in MTBE use was due to a 10 percent increase in CaRFG production, from 83.1 million barrels in the first quarter to 91.4 million barrels in the second quarter of 2003. The average concentration of MTBE in California's gasoline was 3.4 percent in the second quarter of 2003, a slight decline from the previous quarter.

Figure 1 illustrates the average quarterly concentration of MTBE used in California's gasoline during the years of 2000 through the second quarter of 2003. The average concentration of MTBE decreased slightly over the last quarter due to the continued phase out of MTBE-blended gasoline by California refiners. The 10 percent increase in gasoline production, combined with a slight decrease in MTBE concentration, suggests that refiners have continued to phase out MTBE-blended gasoline during their most productive time of year. Refiners typically produce more gasoline during the second quarter to coincide with the increased demand that accompanies the onset of the summer driving season.

Figure 2 compares the average quarterly spot price of CaRFG to the spot price for MTBE. The chart indicates that not only do the prices of MTBE and CaRFG vary, but also the relative difference between these prices varies. The changing relative prices encourage the refiner to adapt to the changing economic incentives to increase or decrease the concentration of MTBE within required blending limits. Refiners had a greater incentive to use MTBE during the first, third, and fourth quarters of 2000, the third quarter of 2001, the second quarter of 2002, as well as during the first and second quarters of 2003 when the price of MTBE was low relative to CaRFG. In contrast, during the second quarter of 2000 and the first and fourth quarters of 2001 MTBE was relatively expensive, and refiners had incentive to decrease the use of MTBE. With the continued transition to ethanol blending by the majority of refiners in California, the price of MTBE has become almost irrelevant.

The concentration of MTBE, in MTBE-blended gasoline, has varied because of seasonal blending requirements as well as the general transition to ethanol-based gasoline. Refiners typically reduce their use of butane as they shift from winter to summer blends of gasoline during the build up to the second and third quarters of each year. However, as observed during the first quarter of 2003, a significant trend by California's major refiners to phase out MTBE usage before the December 31, 2003 deadline is underway. The second quarter of 2003 continued this trend within the state. An additional six refiners reported zero usage of MTBE during the second quarter of 2003.

Table 1
California MTBE Use by Refinery Location

Refiner	California Location	MTBE Use 2nd Qtr – 2003 (Thousands of Barrels)	MTBE Use 1st Qtr – 2003 (Thousands of Barrels)	Change From Previous Quarter (Percent)
BP[1]	Carson	0	65	-100.0%
ChevronTexaco[2]	El Segundo	1	182	-99.5%
ChevronTexaco[3]	Richmond	401	301	33.2%
ExxonMobil[4]	Torrance	0	24	-100.0%
Kern Oil	Bakersfield	0	1	-100.0%
ConocoPhillips [5]	Los Angeles	10	35	-71.43%
ConocoPhillips [6]	Rodeo	0	0	N/A
Shell[7]	Bakersfield	0	15	-100.0%
Shell[8]	Los Angeles	0	3	-100.0%
Shell[9]	Martinez	0	21	-100.0%
Tesoro[10]	Avon	710	544	30.51%
Valero[11]	Wilmington	951	840	13.21%
Valero[12]	Benicia	1,048	966	8.49%
State Refinery MTBE Totals		**3,121**	**2,997**	**4.24%**
State CaRFG Production		**91,449**	**83,139**	**10.00%**
Statewide Average MTBE Content		**3.41%**	**3.60%**	**-0.019%**

Source: California Energy Commission form number Q1001

Figure 1
California Gasoline
MTBE Concentration

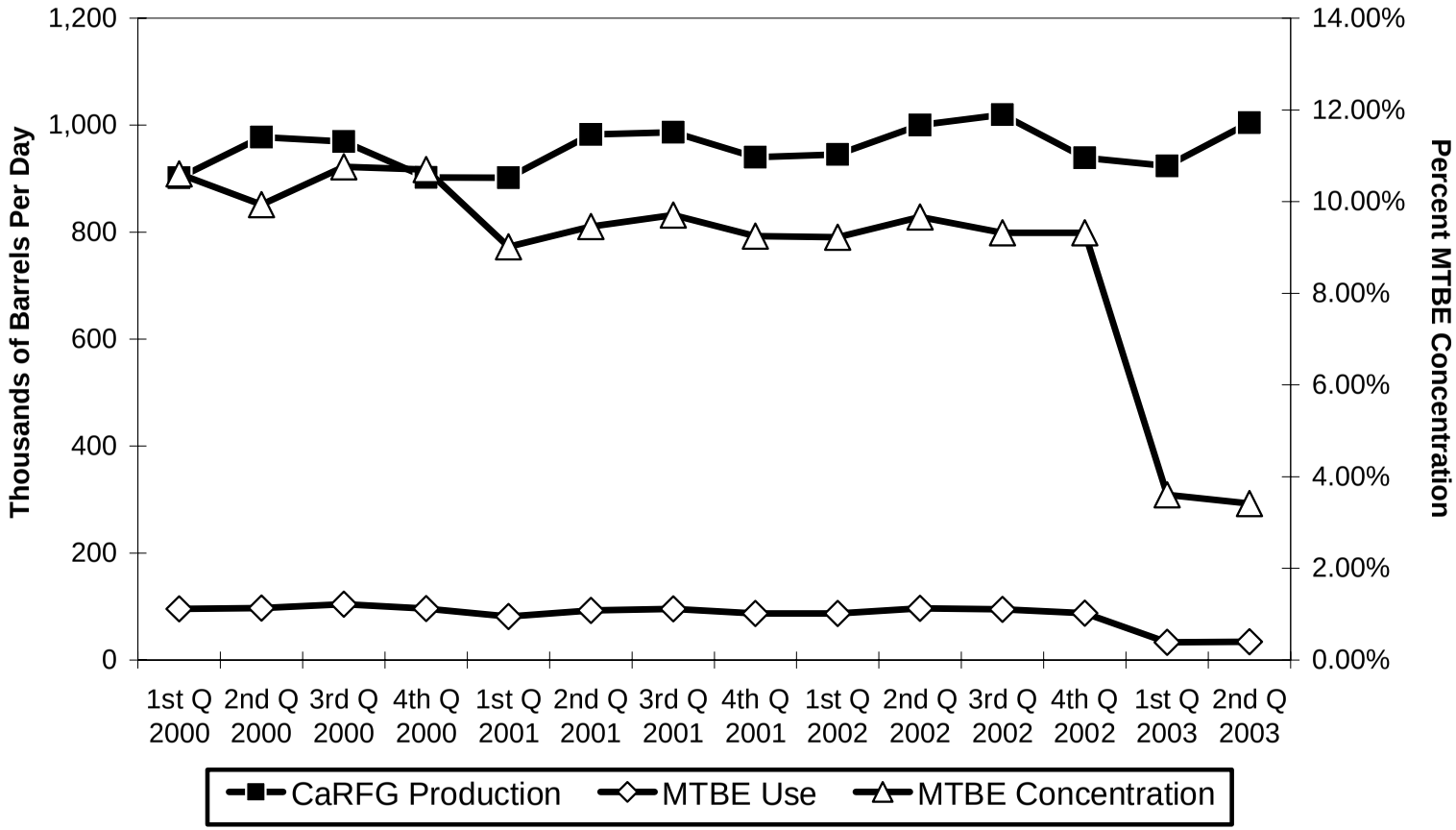
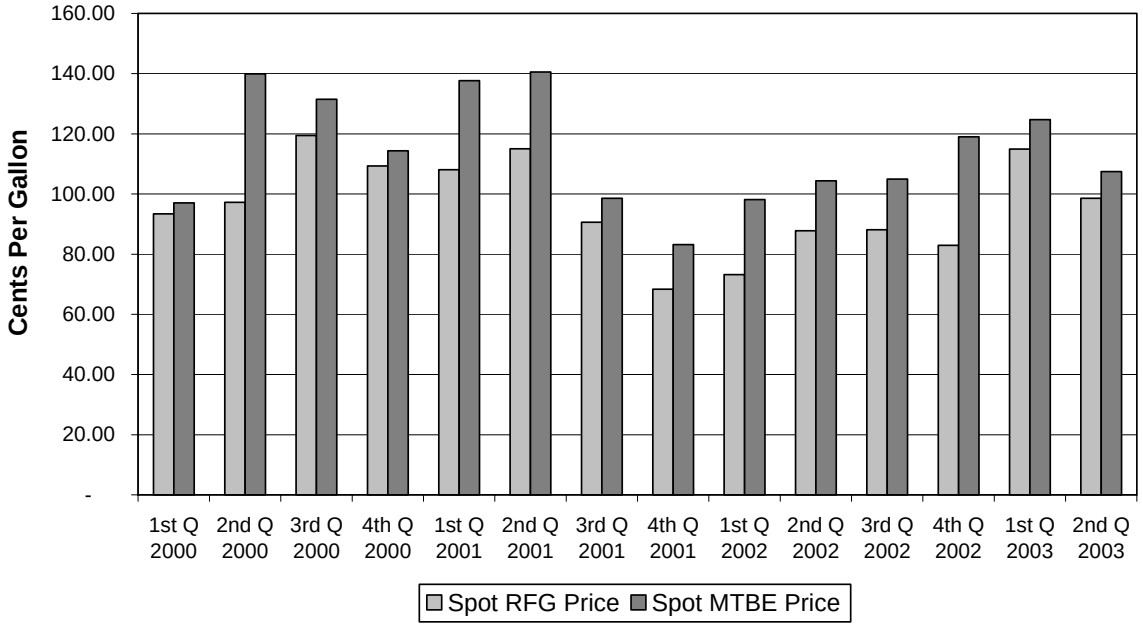


Figure 2
CaRFG vs. MTBE Spot Prices
Los Angeles



Source: California Energy Commission derived averages from Oil Price Information Service daily west coast spot market reports and Oxy-Fuel News Weekly Price Report.

End Notes

[1] BP Amoco merged with ARCO to form BP 4/18/00. Prior to the merger, this refinery was known as the ARCO – Carson refinery.
[2] Chevron merged with Texaco to form ChevronTexaco 9/30/01. Prior to the merger, this refinery was known as the Chevron – El Segundo refinery.
[3] Chevron merged with Texaco to form ChevronTexaco 9/30/01. Prior to the merger, this refinery was known as the Chevron – Richmond refinery
[4] Exxon and Mobil merged 7/2000 to become ExxonMobil. This refinery was known as the Mobil Torrance refinery prior to the merger.
[5] Phillips Petroleum Co. merged with Conoco Inc. 8/30/02 to form ConocoPhillips. Phillips Petroleum Co. previously acquired the Tosco Corp. 9/2001. This refinery was known as the Tosco – Los Angeles refinery prior to that purchase.
[6] Phillips Petroleum Co. merged with Conoco Inc. 8/30/02 to form ConocoPhillips. Phillips Petroleum Co. previously acquired the Tosco Corp. 9/2001. This refinery was known as the Tosco – Rodeo refinery prior to that purchase.
[7] Shell Oil Products acquired this refinery along with all of Equilon's western US refineries 3/2002. Equilon was a joint venture formed by Texaco and Shell 4/2000. Prior to the Equilon joint venture, the refinery was operated solely by Texaco and known as the Texaco – Bakersfield refinery.
[8] Shell Oil Product acquired this refinery along with all of Equilon's western US refineries 3/2002. Equilon was a joint venture formed by Texaco and Shell 4/2000. Prior to the Equilon joint venture, the refinery was operated solely by Texaco and known as the Texaco – Los Angeles.
[9] Shell Oil Products acquired this refinery along with all of Equilon's western US refineries 3/2002. Equilon was a joint venture formed by Texaco and Shell 4/2000. Prior to the Equilon joint venture, the refinery was operated solely by Shell and known as the Shell – Martinez refinery.
[10]Tesoro Petroleum completed its purchase of this refinery from Valero on 05/17/02. Valero merged with Ultramar Diamond Shamrock (UDS) 12/2001. This refinery was known as the UDS– Avon or Golden Eagle refinery prior to the merger. UDS operated the refinery independently prior to the sale to Tesoro Petroleum.
[11] Valero merged with Ultramar Diamond Shamrock (UDS) 12/2001. This refinery was known as the UDS-Wilmington refinery prior to the merger.
[12] Valero purchased this refinery from ExxonMobil 5/2000. The refinery was known as the ExxonMobil – Benicia refinery prior to the purchase.